

## EAST PARK RESERVOIR

## A Pilot Study of User Preferences

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## **Concepts Learned at the Short Course and Applied in Developing This Paper**

### Social Concepts in Outdoor Recreation

National Forest managers have an obligation to fulfill the recreational needs of future generations. Those forest users will be more educated and capable of voicing informed concerns. In a setting of natural resource shortages, shrinking land bases, and increased forest use, it is vital that today's managers adapt to reflect society's new and changing values.

Resource managers must identify ways to make human needs compatible with resource needs. Appropriate and adequate facilities are one way to reduce conflict and improve the quality of life for forest users.

### Economic Considerations

Cost effectiveness is an integral part of all management decisions. In resource management, however, it must be coupled with social and resource concerns. Forest use and environmental qualities are critical components of recreational investment decisions.

### Survey Techniques

User surveys can provide forest managers with information about forest visitors and their needs.

### Computer Applications for Recreational Resource Management

Computers are a highly effective tool for processing and formatting information. Data bases and graphics allow managers to quickly study user needs and preferences. Word processing and electronic mailing assist in the communication of that information.

### Written Communications

An important aspect of communication is the written document. Literature allows the reader to absorb, evaluate, and investigate the content. Authors must make that process as simple and enjoyable as possible.

### ACKNOWLEDGEMENTS

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## ABSTRACT

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TITLE: East Park Reservoir: A Pilot Study of User Preferences

ABSTRACT: Historically, most facility site planning activities in the Forest Service do not include input from users. Consequently, facilities are sometimes provided which are not necessary or wanted.

In these times of reduced funding, it is important that funds be used effectively. Developing facilities which best represent the needs of users, while protecting the resources, are imperative.

In 1986, the Forest Service assumed management responsibilities for the East Park Reservoir. Built in 1910 by the Bureau of Reclamation, the reservoir has established patterns of visitor use, but has limited facilities.

The Mendocino National Forest has an opportunity to improve the quality of recreational experiences at East Park through facility development. A pilot survey conducted in 1986 provides insight into why people come to East Park, what facilities they use, and what facilities they want. This paper, using that study, formulates management direction for effective facility investments.



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## I. INTRODUCTION

A quality recreational experience fulfills the needs of users. Providing this quality experience is the goal of all recreation agencies (LaPage and Bevins, 1981). It is critical, therefore, for managers to know and understand the needs of the users they serve (Strauss and Bollinger, undated).

Having appropriate facilities can be an important component of meeting user needs. In a world of rising costs and limited funds, the manager must choose facilities which provide quality experiences to the greatest number of users (Fight, 1980). At the same time, protection of the resources must be considered.

In 1986, the Forest Service assumed management responsibilities for the East Park Reservoir. Built in 1910 by the Bureau of Reclamation, this reservoir is located in Colusa County, California, near the town of Stonyford. The reservoir has well-established patterns of use, but has limited facilities. Developing new facilities or enhancing existing ones may improve the recreational experiences of East Park users.

Understanding the needs of East Park users will help determine if additional or enhanced facilities will provide a quality recreational experience, and, thus, realize agency goals.

As part of this project, a pilot study, was conducted in 1986 to gain understanding of users' needs. While not intended to be statistically valid, the study did provide important insight into which East Park facilities are most in demand. Information from the study was used to formulate management direction for the East Park Reservoir.

### Statement of the Problem

There is a limited amount of funds available for developing facilities at East Park Reservoir. Proper allocation of funds must be determined to best meet the needs of East Park users.

### Purpose and Objectives

The purpose of this project is to generate information for the Forest Supervisor and the Stonyford District Ranger about East Park user preferences and needs. Using this information, the problem of limited funds is addressed.

This project has six objectives. They are:

1. Perform a literature search on users' desires for outdoor recreational facilities. A search was also done on public surveying techniques, with emphasis on facility needs assessments.
2. Develop and conduct a pilot survey of East Park users to ascertain the area's attraction and what facilities they desire to be improved or developed.
3. Analyze the user survey data.
4. Use the data analysis to formulate recommendations for appropriate facility development. Recommendations will also address the need for a monitoring plan which evaluates project success and changes in the users desires.
5. Document the project with this paper.
6. Incorporate this paper's recommendations into the Mendocino National Forest's Land Management Planning (LMP) process. As direction for the East Park Management Area, the paper will assist reservoir managers in applying research techniques to on-site management situations.

#### Basic Assumptions

Six assumptions were made and followed for the purposes of this paper. They are:

1. East Park visitors know reasonably well what their facility preferences are.
2. Visitors' preferences are important to them.
3. Visitors' preferences should be important to the Forest Service.
4. In the short run, there will be no significant changes in user preferences.
5. Users who were surveyed are representative of the "greatest number of users," i.e. those whose needs we want to meet.
6. Results of a controlled, statistically valid study would not be substantially different from this pilot study.

## II. LITERATURE REVIEW

This project required an understanding of two concepts; user preferences and survey techniques.

A literature search of user preferences revealed that preference is a function of experience. Without a variety of recreational experiences, users are unable to determine preferences. Because experiences can be highly variable, preferences can also be highly variable. It is important, therefore, to acquire site-specific information about users preferences if appropriate decisions are to be made. Intuitive decisions may be inappropriate when managing for public needs. Facility survey models for obtaining site-specific information were unavailable in the literature studied. It was necessary to design a survey model for East Park Reservoir. The following publications provided information about user preferences:

1. Hof and Kaiser (1983)
2. LaPage and Bevins (1981)
3. Chilman and Hampton (1980)
4. Feuchter (1980)
5. Schreyer (1980)
6. Fight (1980)
7. Shafer and Lucas (1978)
8. Driver and Knopf (1975)
9. Stankey (1975)
10. Peterson (1974)
11. Hancock (1973)
12. Hunt (1973)
13. Hendee and Harris (1970)
14. Stille (1970)
15. Alden (1965)
16. Reid (1963)
17. Driver (undated)
18. Strauss and Bollinger (undated)
19. Clemson University short course lectures



The second portion of the literature search studied the mechanics of user survey design and implementation. The following publications provided models for selecting an appropriate survey format. They also discussed methods for obtaining, analyzing, formatting, and presenting sample data.

1. Converse and Presser (1986)
2. Fink and Kosecoff (1985)
3. Oppenheim (1966)
4. Bartholomew (1963)
5. Cannel and Fowler (1963)
6. Payne (1951)
7. Demings (1944)
8. Clemson University short course pamphlet

#### Personal Contacts

Individuals with survey experience were contacted to discuss methods and observations. Suggestions on survey design were also solicited. Contacts included Forest Service line and staff officers and social science research specialists.

Because these conversations were general in nature, they are not referenced in the text. Names of contacted individuals are listed in the References section of this paper. One private landowner, who is in process building a full-service campground, with showers, at East Park was contacted.

### III. PROCEDURES

#### Subjects

A sample population of 95 East Park Reservoir users were interviewed for this study. The sampled population met conditions discussed by other researchers. Only visitors in camping areas or on the shoreline were sampled (Chilman and Hampton, 1980) and care was taken to include individuals engaged in various types of recreational activities. In family groups, heads of households were interviewed and in adult groups, all members of the group were selected (Reid, 1963). Children were not interviewed (Clemson University Pamphlet, 1985).



### Instrumentation

An interview-questionnaire (Appendix A) was used to acquire data from users about their recreational experiences and preferences at East Park Reservoir. This survey form was reviewed and finalized in consultation with experienced researchers from the Pacific Southwest Experiment Station, Berkeley, California. The form consisted of 9 questions described below under Treatment of Data.

Because this was a pilot survey, statistical validity of the form and data was not evaluated.

### Collection of Data

The survey was conducted from August 15, 1986 through November 14, 1986, between the hours of 10:00 A.M. and 4:30 P.M. PST. Interview days were randomly selected during this period, with an average of 4 contacts per day. Visitors were interviewed on all days of the week, including weekends. Data were also collected during a major holiday weekend (Labor Day). Weather conditions were favorable on all sampling days.

A preliminary field test was made and one modification to the questionnaire was needed. A "no use" choice was added to question eight. The survey was conducted by contacting each subject and explaining the survey to them. General instructions about the questionnaire were provided. Each question was answered by the interviewee and recorded by the investigator. No one refused to be interviewed. Most contacts were very cordial and helpful.

### Treatment of Data

Data obtained from the survey were transferred to a sequential data base which had been designed specifically for this project. Existing software on the Forest Service's Data General computer system was used to create the data base and to tabulate the variety of tables and charts appearing in the Analysis section.

Data were analyzed by grouping the 9 questions into the following five categories:

1. User Characteristics
2. Area Attraction
3. Preferred Facilities
4. Preferred Activities
5. Preferred Management

Frequency of reservoir use was the only USER CHARACTERISTIC recorded and was ascertained by questions 1 and 2. Users were segregated into four categories: first-time; infrequent (1-7 visits); moderate (8-35); and frequent (more than 35) use. The percentage in each category was then determined.

Question 3, AREA ATTRACTION was an open-ended question. Participants were encouraged to answer in their own words. A wide variety of responses were obtained. Responses of a similar nature were grouped together and segregated into ten categories shown in the Analysis section (Table A). Each category was further analyzed in terms of the reservoir use frequency of respondents within that category.

Questions 4, 5, and 6 were used to evaluate PREFERRED FACILITIES. The first two questions determined use and preference of four types of existing East Park facilities: tables, stoves, garbage cans, and toilets. Percentages were used to compare which of these facilities received the most use, which were most preferred, and which would have the greatest increase in use when provided. As in question 3, reservoir use frequency was compared with these data. Question 6 asked users to choose three facilities from a list of 24 and rank them in order of importance.

Questions 7 and 8 evaluated PREFERRED ACTIVITIES. Users listed and ranked three activities they most often participated in. Question 7 addressed use during the spring, summer, and fall seasons. Question 8 inquired about potential use during the winter season. The reservoir had traditionally been closed from November through April. Therefore user responses are speculative. A list of 19 activities to choose from was provided in both questions. Each activity was analyzed in terms of percent change of change in use between winter and the open season.

The final question asked users to choose the type of RECREATIONAL MANAGEMENT they preferred. The first choice was that of "primitive" management (providing an undeveloped, dispersed experience). The second choice was "developed" management (including full service campgrounds, fees, and a more structured setting.) Comparisons are shown in percentages in the Analysis section.

#### IV. ANALYSIS OF DATA

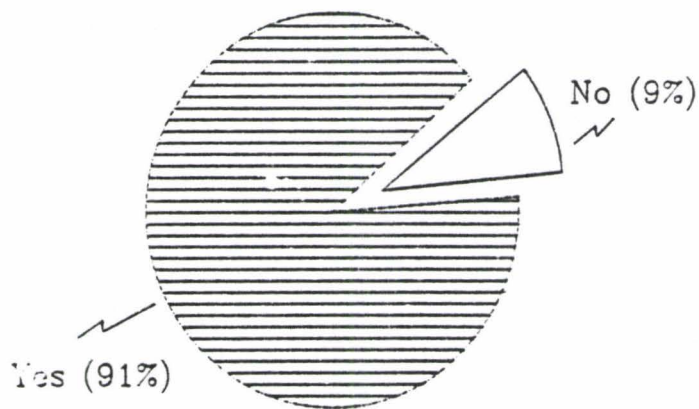
Of the five categories analyzed, only preferred facilities and preferred activities required users to set priorities for their top three choices. Some preferences, such as potable water, were frequently chosen as the highest priority. Other preferences, such as picnic tables, appeared important as second and third priority were considered.

##### User Characteristics

In response to whether the user had visited East Park Reservoir before, 91 percent said they had (Figure 1). Only 9 percent of the users were visiting for the first time. About 38 percent of all visitors were frequent users, 23 percent were moderate users, and 30 percent were infrequent users (Figure 2).

FIGURE 1

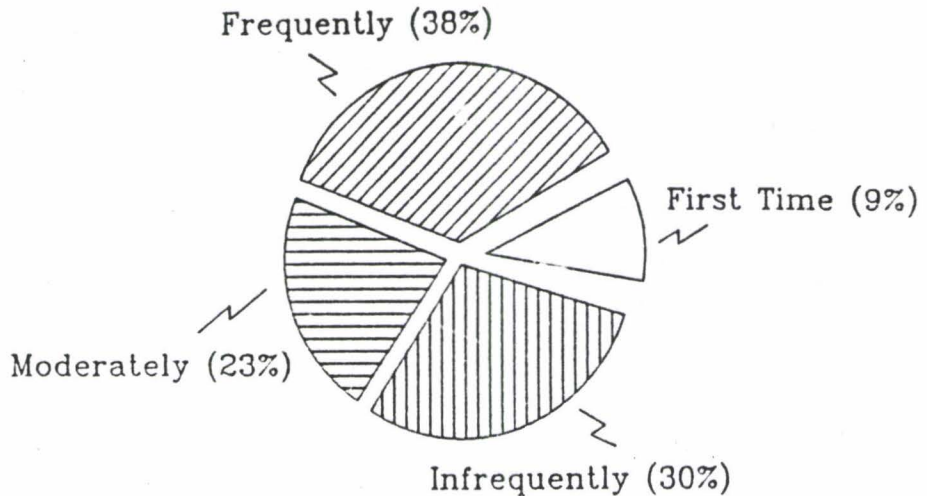
HAVE YOU VISITED THE AREA BEFORE?



PERCENTS OF YES/NO ANSWERS

FIGURE 2

## HOW MANY TIMES HAVE YOU VISITED?



Frequently: greater than 35 visits

Moderately: 8 - 35 visits

Infrequently: 1 - 7 visits

Median = 20 visits

### Area Attraction

Four items appeared as primary attractions to all users of the area. These were, ranked in order of frequency of response: uncrowded area, primitive camping, fishing, and camping close to the water (see Table A). The first two attractions are closely related, as are the second two attractions. The strong rating of the first two items is obvious since primitive camping allows camping near the water. Frequent users were most attracted by primitive camping, while infrequent users preferred the uncrowded nature of East Park.

Secondary attractions for both frequent and moderate users were scenery, cleanliness, and wildlife. For infrequent and first-time users, secondary attractions were water activities, such as sailing, swimming, and waterskiing.



TABLE A: PRIMARY ATTRACTION OF EAST PARK RESERVOIR

ATTRACTION	Number Of Users	%	RESPONSES BY FREQUENCY OF USE (%)			
			Frequent	Moderate	Infrequent	First Time
Uncrowded	29	30.5	14	34	45	7
Primitive camping	29	30.5	55	24	17	4
Fishing	28	29.5	39	25	22	14
Camp near water	24	25.3	45	21	25	8
Other land features (1)	13	13.7	46	38	8	8
Other water features (2)	11	11.6	9	36	28	28
Waterskiing	11	11.6	9	37	37	18
Close to home	10	10.5	40	20	40	0
No fees	10	10.5	30	40	20	10
Clean water	6	6.3	0	50	50	0

(1) Other land features include scenery, clean area, wildlife, "nice area," etc.

(2) Other water features include beaches, sailing, swimming, "nice lake," etc.

TABLE B: FACILITY USE

FACILITY	Respondents who use the facility now (%)	Respondents who would use the facility if more where available (%)	Increase (%)
Garbage Cans	88.4	91.6	3.6
Toilets	83.2	85.3	2.5
Tables	41.1	76.8	87.2
Stoves	11.6	44.2	281.8



### Preferred Facilities

The majority of visitors used existing garbage cans (88%) and toilets (83%) and would continue to use them if available (see Table B). If additional garbage cans or toilets were made available the potential increase in use would be small. Four percent more visitors would use garbage cans and 3 percent more visitors would use toilets.

In contrast, fewer visitors made use of tables (41%) and stoves (12%). A much larger proportion of visitors said they would use tables (77%) and stoves (44%) if more were available. This would correspond to an increase of 87 percent for tables and 282 percent for stoves (see Table C).

Frequency of reservoir use did not influence response to this question. All users exhibited the same preferences regardless of how many times they had visited this area. One exception is related to "frequent" visitors and stove use. A small minority of "frequent" visitors used stoves (8%) and use of stoves would increase if more were available (28%). The other groups indicated a higher use and preference.

TABLE C: DISTRIBUTED BY FREQUENCY OF AREA USE

Percent of Each Frequency Group Using Facilities				
FACILITY	Frequent	Moderate	Infrequent	First Time
Garbage cans (existing)	89	91	93	67
Garbage cans (if available)	89	96	100	78
Toilets (existing)	83	86	86	67
Toilets (if available)	83	91	93	67
Tables (existing)	40	41	36	56
Tables (if available)	64	86	82	89
Stoves (existing)	8	18	11	11
Stoves (if available)	28	59	50	56

When other facilities were considered along with existing ones, five facilities dominated the results. They were, in order of preference, potable water (44%), launch ramps (36%), tables (35%), improved toilets (28%), and surfaced roads (19%). The choice of "no facilities" (12%) was next (see Table D). Tables were important, but not as a first priority. Existing chemical toilets showed the smallest use increase, but improved toilets were highly desirable.

TABLE D: PREFERENCES FOR ADDITIONAL FACILITIES

FACILITIES	USER PRIORITIES FOR ADDITIONAL FACILITIES			
	1st	2nd	3rd	Total
Potable water	27	13	4	44
Launch ramp	27	5	4	36
Tables	5	11	19	35
Improved toilets	9	13	6	28
Surfaced roads	5	10	4	19
Store/marina	1	6	2	9
Fire rings	1	3	4	8
Dump station	0	6	2	8
Fish cleaning station	1	1	3	5
Level parking pads	1	1	2	4
Pedestal grill	1	1	2	4
Power hook-ups	0	3	1	4
Reserved group area	0	1	3	4
Designated beach	1	0	1	2
Tent pads	1	0	1	2
Boat-in campsites	0	0	2	2
Sewer	0	0	2	2
Trash cans	1	0	0	1
Shaded shelter	1	0	0	1
Enclosed stoves	1	0	0	1
Designated fishing area	0	1	0	1
Trails	0	0	1	1
Single campsites	0	0	1	1
More ranger patrols	0	0	1	1
Other: (No facilities)	12	0	0	12

### Preferred Activities

Four water-related choices, dominated the preferred activities (see Table E). They were fishing (65%), swimming/waterplay (55%), waterskiing (41%) and power boating (24%). These were followed by car camping (24%), tent camping (20%), and viewing scenery (14%). Water-related activities accounted for 68 percent of the total choices.

TABLE E: PREFERRED ACTIVITIES

ACTIVITY	PRIORITY			Total
	1st	2nd	3rd	
Fishing	45	13	7	65
Swimming/Waterplay	12	22	21	55
Waterskiing	19	9	13	41
Camping - Auto	3	11	10	24
Power boating	5	11	8	24
Camping - Tent	2	8	10	20
Viewing scenery	1	3	10	14
Camping - Trailer	4	6	1	11
Picnicking	0	4	5	9
Sailing	2	4	1	7
Rafting, Rowing, Tubing	0	1	4	5
Jet skiing	1	1	0	2
Horseback riding	0	0	2	2
Canoeing	0	1	0	1
Nature study	0	1	0	1
Hobbies	0	0	1	1
Motorcycle riding	1	0	0	1

Over 69 percent of the respondents indicated that they would use the reservoir if it was open in the winter. With the exception of fishing (59%), water-related activities lost their dominance as a preferred activity. Fishing was followed by car camping (27%), viewing scenery (21%), power boating (13%), and trailer camping (13%) (see Table F). During the winter, water-related activities accounted for 50 percent of the total choices.

TABLE F: PREFERRED WINTER ACTIVITIES

ACTIVITY	PRIORITY			Total
	1st	2nd	3rd	
Fishing	48	9	2	59
Camping - Auto	5	19	3	27
Viewing scenery	1	1	19	21
Power boating	1	7	5	13
Camping - Trailer	0	11	2	13
Camping - Tent	2	6	3	11
Picnicking	0	3	5	8
Waterskiing	3	3	2	8
Nature study	0	3	1	4
Rafting, Rowing, Tubing	0	1	3	4
Swimming/Waterplay	1	1	1	3
Sailing	1	1	0	2
Horseback riding	0	1	1	2
Canoeing	0	0	2	2
Hobbies	0	0	2	2
Diving	0	0	1	1
Hunting	1	0	0	1

A comparison of seasonal use shows several changes. Of major significance is an 18 percent reduction in water-related activities during the winter. Activities exhibiting the greatest changes in the winter were swimming/waterplay (-55%), waterskiing (-35%), and power boating (-11%) (see Table G). There is also a decline in fishing (-6%) and tent camping (-9%). Increased use during winter includes viewing scenery (+7%), nature study (+4%), car camping (+3%), and trailer camping (+2%).

TABLE G: COMPARISON OF SEASONAL ACTIVITIES

ACTIVITY	Percent Total of All Priorities		
	Summer/Fall/ Spring	Winter	Change Percent
Fishing	68	62	-6
Swimming/Waterplay	58	3	-55
Waterskiing	43	8	-35
Camping - Auto	25	28	+3
Power boating	25	14	-11
Camping - Tent	21	12	-9
Viewing scenery	15	22	+7
Camping - Trailer	12	14	+2
Picnicking	10	8	-2
Sailing	7	2	-5
Rafting, Rowing, Tubing	5	4	-1
Horseback riding	2	2	0
Canoeing	1	2	+1
Nature study	1	4	+3
Hobbies	1	2	+1
Motorcycle riding	1	0	-1
Diving	0	1	+1
Hunting	0	1	+1
Jet Skiing	2	0	-2

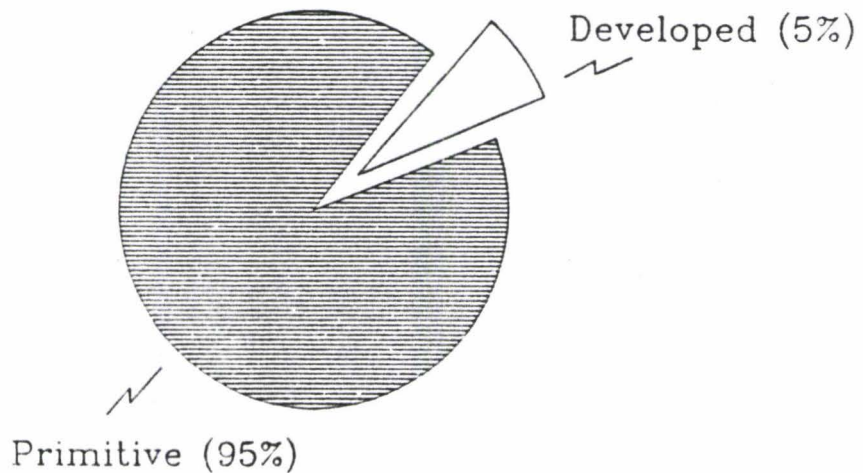


### Management Preference

The final question provided the greatest insight into user preference for a particular management style. Given a choice between existing primitive conditions and developed campgrounds, 95 percent of East Park users preferred a primitive experience. Only 5 percent preferred a developed camping experience (see Figure 3).

FIGURE 3

### MANAGEMENT ALTERNATIVES:



## V. SUMMARY AND CONCLUSIONS

The primary objective of this project was to obtain detailed information about why people come to East Park Reservoir, what facilities they use, and what facilities they want. This collected information assisted in the formulation of management direction for effective facility investments.

This section consists of five parts: Summary of Procedures and Findings, Conclusions, Discussion and Implications, Recommendations, and Monitoring.

### Summary of Procedures and Findings

An interview/questionnaire was developed to obtain information from East Park users about their preferences and activities. Random sampling of 95 visitors was taken over a period of three months during 1986. Data were entered in a data base and summary tables were generated. The summaries were studied to determine which user preferences and activities were important to the majority of East Park visitors. The study provided insights that were important in the consideration of facility alternatives.

Findings revealed that over 91 percent of users had visited East Park before, and that 95 percent of users preferred the primitive nature of the Reservoir. There were four major attractions for visitors: lack of crowds, primitive camping opportunities, fishing, and ability to camp near the water. Of the four types of existing facilities that were of interest, the majority of users felt there were adequate garbage cans and toilets, but that more tables and stoves were needed. The five most preferred facilities were potable water, launch ramps, tables, improved toilets, and surfaced roads.

Preferred summer activities were water-oriented, with fishing, swimming, and waterskiing rated as the top three choices. Winter preferences showed a drop in water activities. Although fishing remained the number one activity, it was followed by car camping and viewing scenery.

### Conclusions

Within the limitations of this study and based on the findings, the following conclusions can be made.

The study proves to be worthwhile as a guide for developing facilities. While not statistically valid as a pilot survey, never-the-less, it provides important insights into user preferences.

Preferred activities in all seasons are compatible with, and re-enforced by, facility preferences. Management preferences do likewise.

Potable water, boat ramps, tables, improved toilets, and surfaced roads are the facilities which would likely provide the user with a quality experience at East Park.

Stoves are an anomaly in this study. Although they show the highest rate of increased use (282%), only 44 percent of respondents will use them. Stoves will also be permanently located in a designated area, and will force users to give up some of their freedom in choosing a camping area.

#### Discussion and Implications

This study contributes to the body of knowledge required for understanding East Park user preferences. It may help other recreation administrators cope with development and management alternatives.

This study is a worthwhile contribution if it serves as a basis for future investigations. It can be an impetus for improving management efficiency and user enjoyment, while concurrently maintaining the quality of resources which users prefer to experience.

#### Recommendations

1. This study is recommended as a management prescription for the East Park Management Area of the Mendocino National Forest Land Management Plan and for inclusion to the plan as such.
2. Further investigation should be conducted to validate the statistical integrity of this pilot survey. This would be an excellent recreation management student project. Chico State University offers a good source for assistance.
3. The East Park Management Area's primitive development character should be maintained.
4. Additional investigation for East Park should be conducted to determine the Limits of Acceptable Change (LAC) which has replaced the recreational carrying capacity concept. The LAC will be established to maintain the primitive character.
5. A portion of the lake should be kept open for use during the winter.



6. East Park should be managed to support fishing, camping, power boating, and scenery viewing as year-round activities. Management should also support swimming, waterplay, and waterskiing as "warm" season activities.

7. Certain facilities should be developed. They are, in order of preference: potable water, boat ramps, picnic tables, improved toilets, surfaced roads, and stoves. Stoves should be developed because they are relatively inexpensive and would fulfill some users' needs. The availability of additional stoves would also provide the greatest increase in visitor use of any present facility. Because they are rated as a low priority to the majority of users, a few stoves should be installed and their use monitored.

8. Viewing scenery is one of the primary activities at East Park Reservoir. Facilities should be designed to meet visual quality objectives of "retention" (not visually evident).

9. Managers should utilize California Boating Funds, which are available for launch ramp construction.

10. Table H on the following page shows how these facilities can be developed under three alternative funding levels. The ultimate objective is to develop all facilities to the maximum level shown. Facilities are ranked by importance. As funding is allocated, the more important facility yet to be installed is developed to the affordable standard.

#### Monitoring

Development of the private campground near East Park should be monitored. This will help prevent competition and conflicts with other developers. If the developer provides a full-service campground with showers, this may fulfill some user needs and allow the Forest Service to continue providing a more primitive experience to visitors.

Facility planning and construction should be monitored to ensure that the visual quality objectives of "retention" are maintained.

The impact of further facility development should be monitored to determine if the concept of succession (Schreyer, 1980) applies to East Park. The concept of succession theorizes that improved facilities may attract users with different facility preferences. Management is then forced to re-evaluate what facilities provide a quality experience. A follow-up survey should be conducted two or three years after the facilities recommended in this study are in place.

TABLE H: FACILITY DEVELOPMENT ALTERNATIVES

FACILITY	MAXIMUM DEVELOPMENT	INTERMEDIATE DEVELOPMENT	MINIMUM DEVELOPMENT
Potable Water	5 Locations (3 Eastside) (2 Westside)  \$129,000.	3 Locations (2 Eastside) (1 Westside)  \$94,000.	2 Locations (1 Eastside) (1 Westside)  \$82,000.
Boat Launch	2 Boat Launches \$513,000. Eastside <u>\$320,000.</u> Westside  \$833,000.	1 Boat Launch 1 Eastside  \$513,000.	2 Boat Launches 1 Eastside Gravel Only  \$8,000.
Tables	275 sites x .762 = 211 tables  \$34,815.	150 tables  \$24,750.	100 tables  \$16,500.
Improved Toilets	20 Toilets (Vault)  \$440,000.	6 Toilets (Vault)  \$132,000.	10 Toilets  \$16,500.
Surfaced Roads	Main: Asphalt/ Concrete 3.63 mi. = \$254,000 Collector: chip seal 5.55 mi. = \$277,500 Local: Gravel 3.57 mi. = <u>\$ 89,250</u>  \$620,850	Gravel all Roads 12.75 mi. =  \$382,500.	Gravel Main Roads to Boat Launch Only 2.09 mi. =  \$8,000.
Stoves	275 sites x .44 user 121 =  \$7,865.	75 Stoves  \$4,875.	50 stoves  \$3,250.

All alternatives are based on 275 sites, Bureau of Reclamation (East Park Master Plan, 1983).



## REFERENCES

Anderson, Ronald (Recreation/Lands Staff Officer, Mendocino National Forest), personal contact.

Alden, Howard R. 1965. Characteristics and Preferences of Recreationists in Selected Northern Idaho State Parks. University Idaho College for Forestry Station Note 1, Moscow, Idaho.

Bartholomew, Warren M. 1963. Questionnaire in Recreation, Their Preparation and Use. New York: National Recreation Association.

Bell, Fred (Forest Landscape Architect, Mendocino National Forest), personal contact.

Bureau of Reclamation, Mid-Pacific Region. 1983. Master Plan, East Park Reservoir. Sacramento, California.

Cannell, Charles, and Floyd Flower. 1963. Comparison of a Self-Enumerative Procedure and a Personal Interview: A Validity Study. Public Opinion Quarterly, 27: 250-264.

Chilman, Kenneth C. and Glenn Hampton. 1980. Social Inputs for Dispersed Recreation Management: Some Concepts and an Empirical Test at Lake Tahoe. Department of Forestry, Southern Illinois University, Carbondale, Illinois.

Clemson Recreation Management Short Course, lectures (Class of September 1985), personal contact.

Clemson Recreation Management Short Course, participants (Class of September 1985), personal contact.

Clemson Recreation Management Short Course, pamphlet, (undated). "Interviewing Recreation Participants." Department of Recreation and Park Administration, Clemson, South Carolina.

Converse, Jean M. and Stanley Presser. 1986. "Survey Questions: Handcrafting the Standardized Questionnaire," Vol. 63.

Deming, W. Edwards. 1944. On Errors in Surveys, American Social Review, 9(4): 359-369

Driver, B.L. (undated). Toward a Better Understanding of Social Benefits of Outdoor Recreation Participation. U.S. Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado.

Driver, B.L. and Richard C. Knopf. 1975. Some Thoughts on the Quality of Outdoor Recreation Research and Constraints on Its Application. U.S. Forest Service, Rocky Mountain Forest and Ranger Experiment Station, Fort Collins, Colorado.

English, Dick (Land Management Planning/Resources Staff Officer, Mendocino National Forest), personal contact.

Feuchter, Roy. 1980. Recreation Trends: Indicators of Environmental Quality, In Proc.: 1980 National Outdoor Recreation Trends Symposium, Vol. II, p. 2-8. U.S. Forest Service, General Technical Report, NE-57.

Fight, Roger D. Planners Guide for Estimating Cost Per User-Day of Proposed Recreational Facilities. U.S. Forest Service General Technical Report. PNW 110. 1980.

Fink, Arlene and Jacqueline Losecoff. "How to Conduct Surveys: A Step-by-Step Guide," Beverly Hills, Calif. Sage Publications, 1985.

Fodge, William (Timber staff, Mendocino National Forest), personal contact.

Fogel, Ira (Consultant, Fresno, California), personal contact.

Hancock, H.K. 1973. Recreation Preference: Its Relation to User Behavior. Journal of Forestry 71(6): 335-337.

Hendee, J.C. and R.W. Harris. 1970. Foresters' Perception of Wilderness - Use Attitudes and Preferences. Journal of Forestry, 68(12) 759-762

Hof, John G. and H. Fred Kaiser. 1983. Projections of Future Forest Recreation Use. Resource Bulletin WO-2. U.S. Forest Service.

Hunt, John D. 1973. Natural Resource Use and the Hierarchy of Needs. Journal of Environmental Education, Vol. 4, Number 4.

Huter, James (Timber Staff, Stonyford Ranger District, Mendocino National Forest), personal contact.

Ingersol, Jerry (Management Sciences Staff, Pacific Southwest Experiment Station, Berkeley, California), personal contact.

Johnson, Douglas (District Engineer, Stonyford Ranger District, Mendocino National Forest), personal contact.

King, Larry (Engineering Staff, Mendocino National Forest), personal contact.

Laner, Steve (Management Sciences Staff, Pacific Southwest Experiment Station, Berkeley, Calif.), personal contact.

LaPage, Wilbur F. and Malcolm I. Bevins. 1981. Satisfaction Monitoring for Quality Control in Campground Management. Research Paper, NE 0484. U.S. Forest Service. Durham, N.H.

Laverty, Lyle (Forest Supervisor, Mendocino National Forest), personal contact.

Oppenheim, A.N. 1966. Questionnaire Design and Attitude Measurement. New York: Basic Books.

Payne, Stanley L. 1951. The Art of Asking Questions. Princeton: Princeton University Press.

Peterson, G. 1974. A Comparison of the Sentiments and Perceptions of Canoeists and Wilderness Managers in the Boundary Water Canoe Area. Journal of Leisure Research, 14(5): 194-206.

Reid, Leslie M. 1963. Outdoor Recreation Preferences: A Nationwide Study of Use Desires. Michigan State University, East Lansing, Michigan.

Robinson, Michael (Timber Staff, Stonyford Ranger District, Mendocino National Forest), personal contact.

Schreyer, Richard. 1980. Survey Research in Recreation Management - Pitfalls and Potentials. Journal of Forestry, Society of American Foresters.

Shafer, E.L. and R. Lucas. 1978. Research Needs and Priorities for Dispersed Recreation Management. Journal of Leisure Research, Fourth Quarter.

Smith, Robert (Private landowner, Ladoga, California), personal contact.

Stankey, George H. 1975. Part IV - A Sociologist Among the Economists: Some Social Concepts for Outdoor Recreation Planning. U.S. Forest Service, Intermountain Forest and Range Experiment Station, Forest Sciences Laboratory, Missoula, Montana.

Stille, Thomas A. 1970. Consumer Characteristics, Satisfactions, Preferences and the Demand for Camping at Davis Creek Park. Abstract of Thesis (mimeo). San Jose State University, San Jose, California.

Strauss, Charles A. and Steven A. Bollinger (undated). An Approach to Measuring the Quality of Recreational Services. Cooperative Project No. 8, Pennsylvania State University, University Park, Pennsylvania.

U.S. Forest Service, RIM Handbook, 2309.11.

Yates, Jim (Lakes Manager, Stonyford Ranger District, Mendocino National Forest), personal contact.



## EAST PARK USER SURVEY

1. HAVE YOU VISITED THIS AREA BEFORE? YES NO
2. IF YES, ABOUT HOW MANY TIMES? \_\_\_\_\_
3. WHAT MAKES THE AREA ATTRACTIVE TO YOU? \_\_\_\_\_
4. PLEASE INDICATE WHICH OF THESE FACILITIES YOU USE: (a) Garbage Containers  
(b) Chemical Toilets  
(c) Tables  
(d) Enclosed Stoves
5. WHICH OF THESE EXISTING FACILITIES WOULD YOU USE IF AVAILABLE?  
(a)..... (b)..... (c)..... (d).....
6. PLEASE LOOK OVER THIS LIST OF ADDITIONAL FACILITIES. PICK THE THREE THAT ARE MOST IMPORTANT TO YOU, INCLUDING ANY OTHERS NOT SHOWN IN THE LIST. RANK THEM 1,2,3 IN ORDER OF IMPORTANCE TO YOU.  
(a) Store/Marina (b) Beach (c) Tent Pads (d) Tables (e) Shelters  
(f) Launch Ramp (g) Lifeguard (h) Fire Rings (i) Fish Sta. (j) Dump Sta.  
(k) Pedestal Grill (l) Trails (m) Encl. Stove (n) Boat-in Campsites  
(o) Power Hookups (p) Sewer (q) Imp. Toilets (r) Reserved Group Area  
(s) Potable Water (t) Interpretive Services (u) Single Campsites  
(v) Surfaced roads (w) Other \_\_\_\_\_ (x) Other \_\_\_\_\_
7. WHICH THREE ACTIVITIES IN THIS LIST DO YOU MOST OFTEN PARTICIPATE IN? DESCRIBE AND INCLUDE IN YOUR CHOICES ANY OTHER ACTIVITIES YOU WOULD LIKE TO PARTICIPATE IN. RANK THEM 1,2,3 IN ORDER OF INTEREST TO YOU.  
(a) Viewing Scenery (b) Auto Travel (c) Power Boating (d) Fishing  
(e) Horseback Riding (f) Sailing (g) Raft, Row, Tube (h) Canoeing  
(i) Swimming/Waterplay (j) Diving (k) Waterskiing (l) Nature Study  
(m) Hobbies (n) Camping Auto (o) Camping Trailer (p) Camping tent  
(q) Picnicing (r) Other \_\_\_\_\_ (s) Other \_\_\_\_\_
8. IF THIS AREA WERE TO BE KEPT OPEN IN WINTER, WHICH THREE ACTIVITIES IN THE LIST WOULD YOU PARTICIPATE IN? DESCRIBE AND INCLUDE IN YOUR CHOICES ANY OTHER ACTIVITIES OF INTEREST TO YOU. RANK THE WINTER ACTIVITIES 1,2,3 IN ORDER OF INTEREST TO YOU.  
(a) Viewing Scenery (b) Auto Travel (c) Power Boating (d) Fishing  
(e) Horseback Riding (f) Sailing (g) Raft, Row, Tube (h) Canoeing  
(i) Swimming/Waterplay (j) Diving (k) Waterskiing (l) Nature Study  
(m) Hobbies (n) Camping Auto (o) Camping Trailer (p) Camping tent  
(q) Picnicing (r) Other \_\_\_\_\_ (s) Other \_\_\_\_\_ \*\*\* No Use \_\_\_\_\_
9. WHICH OF THESE TWO ALTERNATIVES DO YOU PREFER:  
(a) The Existing Primitive Dispersed Camping Areas Should Stay As They Are Now  
(b) The Dispersed Areas Should Be Replaced By Developed Camping Sites